

Walking and Working Surfaces Including Stairs, Platforms, and Fixed Ladders

1. Introduction

2. Standards and Codes

3. Protective Devices

4. Work Practices

5. Training

6. Hazards

Appendix A. Construction/Materials Specifications

Appendix B. Floor Materials and Surfaces

Appendix C. Walking and Working Surfaces Including Stairs, Platforms,
and Fixed Ladders Safety Checklist

Introduction

Causes of Slips and Falls

The typical causes of slips and falls are:

- o Presence of oil or water on floors and surfaces.
- o Inferior lighting conditions.
- o Improperly constructed stairs or platforms.
- o Worn, broken, or uneven steps.
- o Unguarded floor and wall openings.
- o Poor floor conditions, such as cracks or holes, protruding nails, and improper floor finishes.

In a Bureau of Labor Statistics (BLS) survey, Injuries Resulting from Falls on Stairs, stated that loss of traction caused the largest number of accidents. Water and other liquids on indoor stairs were usually the cause. Snow and ice were the major hazards on outdoor stairs. The survey also indicated that nearly two-thirds of the workers were not using handrails. Over one-fifth of the stairs on which accidents occurred were not equipped with railings. These falls resulted in serious injuries, and some required a long recuperative period.

Prevention Overview

Prevention consists of proper maintenance and good housekeeping, such as cleanup of liquid spills and appropriate guards for floor and wall openings.

Scope

This covers walking/working surfaces including floor holes, stairs, ladders, and platforms.

Standards and Codes

Group	Standard	Subject
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OSHA	29 CFR 1910 subp D	Walking--working surfaces
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OSHA	29 CFR 1910.22	Walk and work surfaces
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OSHA	29 CFR 1910.23	Floor and wall openings
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OSHA	29 CFR 1910.24	Fixed industrial stairs
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OSHA	29 CFR 1910.27	Fixed ladders
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ANSI	A10.18	Constr/demolition operation temperature
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ASSE	A1264.1	Floor/wall openings & stair/railing systems
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ANSI	A58.1	Design loads
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ANSI	Z535.2	Environmental and facility safety signs
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ANSI	Z4.1	Sanitation
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ANSI	A14.3	Safety requirements for fixed ladders
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ANSI	RP-7	Industrial lighting
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ANSI Z53.3 Safety symbols

OSHA = Occupational Safety and Health Administration.

ANSI = American National Standards Institute.

ASSE = American Society of Safety Engineers.

Protective Devices

Climbing Devices for Fixed Ladders

Fixed-ladder safety devices consist of rail or cable that is attached to the ladder. A sleeve or collar travels on the rail or cable and is attached to the climber's safety belt by hooks and short lengths of chain. At normal climbing speed, the sleeve or collar slides up and down without hindrance. If the climber falls, a locking trigger or friction brake is activated. A stop is usually installed at the top of the rail or cable to prevent the sleeve or collar from sliding off.

Railings

Standard Railings

Railings protect personnel from inadvertently falling over the edge of a platform or through an opening in the floor or wall, as well as from contact with dangerous equipment. Railings can be made of wood, fiberglass, or metal. Platforms greater than 4 feet above ground level, should have standard railings 42 inches high with an intermediate railing and a 4-inch toeboard.

All railing construction should meet the following conditions:

- o A smooth-surfaced top rail about 42 inches above the floor level
- o A strength to withstand at least 200 pounds of top-rail pressure with a minimum deflection.
- o Protection between the top rail and floor equivalent to at least a standard intermediate rail.
- o Elimination of overhanging rail ends, unless the overhang does not constitute a hazard.

Fiberglass railings are particularly suited to corrosive environments, such as chemical companies, metallurgical plating operations, and maritime operations.

Stair Railing

A stair railing is constructed like a standard railing, but the vertical height must not be more than 34 inches or less than 30 inches from the upper surface of the top rail to the surface of the tread in line with the riser face at the forward edge of tread.

Handrail

A handrail consists of a lengthwise member mounted directly on a wall or partition with brackets attached to the lower side of the handrail. The handrail should be rounded or of another design that furnishes an adequate handhold for anyone grasping it. The length of brackets should provide at least a 3 inch clearance between the handrail and the wall or any projection thereon.

Wood Pipe Steel

Post 2 x 4 in. 1 x 1/2-in. diam 2 x 2 x 3/8 in.

Spacing 6 ft 8 ft 8 ft

Top Rail 2 x 4 in. 1 x 1/2-in. diam 2 x 2 x 3/8 in.

Intermediate 1 x 6 in. 1 x 1/2-in. diam 2 x 2 x 3/8 in.

Toeboard 4 in. high 4 in. high 4 in. high

Minimum requirements for railing.

Fencing/Barriers

Physical fences can include metal, wood, or plastic fencing. Plastic safety fence, a minimal security fence

made of polyethylene, is lightweight and portable. The fence has smooth edges and high visibility. It is nontoxic, nonconductive, and will not corrode.

Hole Covers

Hole covers should be made of a strong impervious material (strong enough to support most loads), such as metal or reinforced plastic. To allow access, they may need to be hinged.

Built-in Safety Features in Stairs

Fixed stairs should be built at horizontal angles between 30 and 50 degrees. The minimum tread width of fixed stairs is 22 inches ; the minimum tread depth is 8 inches and the riser height can vary from 6.3 to 9.5 inches.

Certain safety features may be incorporated, such as:

- o Slip-resistant tread. o Nonslip noses.
- o Uniform riser height and tread width.
- o Open-grating type treads (outside stairs). o Landings.

Flooring

Flooring decisions should take into account the following factors:

- o Noise.
- o Dustiness.
- o Maintenance.
- o Drainage.
- o Load.
- o Durability.
- o Resilience.
- o Appearance.
- o Electrical conductivity.
- o Slip resistance.
- o Heat conductivity.
- o Chemical composition.

Inserts of various materials can reduce slipperiness in specific areas. For example, steel gratings filled with concrete can be installed at the door sills of elevators.

Abrasive-coated tape or fabric strips can reduce slipperiness in high-hazard locations.

Mats

Fatigue-Reducing Mats

Fatigue-reducing mats lessen muscular fatigue and often reduce noise. They are made of cocoa fiber (vinyl backed), vinyl, wood (chemically treated), visco-elastic material, or rubber with resilient surfaces.

Slip-Resistant Mats

Slip-resistant mats protect against hazardous footing caused by water, oil, grease, ice, or mud and can be made of neoprene, vinyl, rubber, cocoa fiber, and wood.

Absorbent Mats

Absorbent mats have been specially treated to absorb more than seven times their weight in oil and chemicals. They are especially useful in heavy traffic areas and around leaking machinery.

Conductive (Antistatic) Mats

Conductive mats are designed to dissipate static electricity from persons working with or near electrical equipment. They are used in rooms with high oxygen content, sensitive electronic components, explosives, or volatile liquids.

Insulating High-Voltage Mats

Nonconductive rubber mats can be used in front of switchboards and other hazardous locations. Various thicknesses withstand from 3,000 to 15,000 volts.

Other Mats

Other mats include disposable decontamination mats, metal link floor mats, and thermally insulated mats.

Work Practices

Housekeeping

Inside Buildings

All floor surfaces, including stairs, should be kept dry, clean, and orderly. If needed, use floor drains, false floors, and mats to keep floors dry. If spills occur, they should be mopped up immediately. Where spills or drips are likely (such as where liquids are poured from one container to another), drip pans should be used.

Outside Areas

Grounds should be kept free of debris. Walkways (preferably smooth concrete) should be clear of snow and ice, and of obstacles that block the right of way or present slipping and tripping hazards. Abrasive materials may be used on walk surfaces when it is impractical or impossible to remove snow and ice. Use night lighting, where needed.

Flooring

Only nonskid finishing compounds should be used to protect floors. Use of the wrong cleaning materials and methods of cleaning can make floors slippery. Any problems with the flooring surface should be repaired immediately or immediately marked and repaired as soon as possible.

Aisles and Passages

Machines should be arranged so that operators do not have to stand in aisles to work. Aisles should be at least 30 inches wide to permit free movement of workers and equipment. In open-bay shops, permanent aisles should be marked with lines on the floor. New lines should be yellow and at least 2.5 inches wide. Where material-handling equipment is used, allow enough clearance to permit safe vehicle turns. A safe clearance should be at least 2 feet wider than the widest vehicle used. Lighting in aisles should be at least a minimum of 5-foot candles of illumination at floor level.

Floor Loading

Floor load capacities should not be exceeded. Floor loading capacities should be posted in all above-grade buildings or storage areas.

Guarding

Floor Openings and Holes, Open-Sided Platforms, and Runways

Ladder ways, floor openings, runways, and platforms should be protected with a standard railing and toeboard on all open sides (except at entrances), with the passage through the railing built either with a swinging gate or offset so that personnel cannot walk straight into the opening. Hatch and chute floor openings should be guarded by one of the following: a hinged floor opening cover, a permanent standard railing and

toeboard, or a removable railing with toeboard on not more than two sides of the opening. Standard covers should be provided to protect manholes. Temporary floor openings should be attended by someone or have temporary standard railings installed. Floor holes into which people might walk should be guarded by a hinged floor hole cover. While the cover is not in place, the floor hole must be constantly attended by someone or be guarded by a removable standard railing and toeboard. Clearly

mark all floor openings and holes.

Stair Railings and Guards

In general, every flight of stairs that has four or more risers must be equipped with a standard handrail. Spiral stairs must have a handrail offset to stop people from walking on the parts of the treads that are less than 6 inches .

Training

Employees should be trained in spill clean up, good housekeeping, proper guarding, use of handrails, and floor loading, as well as reporting defective guardrails, steps, and other hazardous surfaces (such as ice and damaged carpets).

Hazards

Personnel injuries result from slipping, tripping, or falling caused by poor housekeeping, insufficient lighting, poor maintenance, slippery or uneven surfaces, inattention to tasks, running, failure to use safety equipment, and fatigue.

Lack of guardrails may result in personnel falling over the edge of platforms, stairs, and pits. In addition, personnel can be struck by objects falling from overhead openings, platforms, and walkways.

Appendix A. Construction/Material Specifications

1. A standard railing must consist of top rail, intermediate rail, and posts. It must have a vertical height of 42 inches nominal from upper surface of top rail to floor, platform, runway, or ramp level. The top rail must be smooth surfaced throughout the length of the railing. The intermediate rail must be approximately halfway between the top rail and the floor, platform, runway, or ramp. The ends of the rails must not overhang the terminal posts except where the overhang would not constitute a hazard.

1.1 For wood railings, the posts must be of at least nominal 2- by 4-inch stock spaced not to exceed 6 feet; the top and intermediate rails must be of at least nominal 2- by 4-inch stock. If the top rail is made of two right-angle pieces of 1- by 4-inch stock, posts may be spaced on 8-foot centers, with 2- by 4-inch intermediate rail.

1.2 For pipe railings, posts, and top and intermediate railings must be of at least 1.5-inch nominal (outside) diameter with posts spaced not more than 8 feet on centers.

1.3 For structural steel railings, posts and top and intermediate rails must be of 2- by 2- by 0.375-inch angles or other metal shapes of equivalent bending strength with posts spaced not more than 8 feet on centers.

1.4 The anchoring of posts and framing of members for railings of all types must be constructed so that the completed railings can withstand a load of at least 200 pounds applied in any direction at any point on the top rail.

1.5 Other types, sizes, and arrangements of railing are acceptable if they meet the following conditions: (1) Be a smooth-surfaced top rail at a height above floor and a platform, runway or ramp level of 42 inches nominal; (2) When frequent removal is required, use flexible material such as wire, rope, or chain for top and intermediate rails; (3) Cover the wire rope with a suitable material such as plastic to eliminate rough surfaces; (4) Have a strength to withstand at least 200 pounds of top rail pressure, with no more than a 3-inch deflection with posts set at a maximum of 8 feet apart; (5) Have protection between the top rail and floor, platform, runway, ramp, or stair treads equivalent at least to that afforded standard intermediate rail; (6) Eliminate overhanging rail ends unless the overhang would not constitute a hazard, such as bluster, scroll work, or paneled railings.

2. A stair railing must be of constructed like a standard railing but the vertical height must not be more than 34 inches or less than 30 inches from upper surface of top rail to the surface of tread in line with the face of the riser at the forward edge of tread.

3. A standard toe board must be 4 inches nominal in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It must be securely fastened in place with not more than a 0.25-inch clearance above floor level. It may be made of any substantial material either solid or with openings not over 1 inch . Where material is piled to such height that a standard toe board does not provide protection, paneling from the floor to the intermediate rail, or to the top rail must be provided.

4. A handrail must have a lengthwise member mounted directly on a wall or partition with brackets attached to the lower side of the handrail and have a smooth surface along the top and both sides. The handrail must be of a rounded or other design that must furnish an adequate handhold for anyone grasping it to avoid falling. The ends of the handrail should be turned in to the supporting wall.

4.1 The height of handrails must not be more than 34 inches or less than 30 inches from upper surface of handrail to surface of tread in line with face of riser or to surface of ramp.

4.2 Hardwood handrails must be at least 2 inches in diameter. Metal pipe rails must be at least 0.5 inches in diameter. The length of brackets must provide a clearance between the handrail and wall or any projection thereon of at least 3 inches . The spacing of brackets must not exceed 8 feet .

4.3 The mounting of handrails must be such that the completed structure can withstand a load of at least 200 pounds applied in any direction at any point on the rail.

4.4 Provide handrails with at least a 3-inch clearance between the handrail and any other object.

5. Floor opening covers may be any material that meets the following strength requirements:

- o Trench or conduit covers and their supports, when located in roadways, must be designed to carry an axle load of at least 20,000 pounds .

- o Manhole covers and their supports, when located in roadways, must comply with local standard highway requirements if any; otherwise, they must be designed to carry an axle load of at least 20,000 pounds.

5.1 The construction of floor openings or manhole covers in buildings must be sufficiently strong to withstand a load of at least 300 pounds applied perpendicularly to any area of the cover. Covers projecting not more than 1 inch above the floor may be used providing all edges are beveled to an angle of 30 degrees to the floor. Hinges, handles, bolts, or other parts must be flush with the floor or cover surface.

6. Construct and mount skylight screens so that they can withstand a load of at least 200 pounds applied perpendicularly at any one area on the screen. They shall also be constructed and mounted so that under ordinary loads or impacts, they will not deflect downward sufficiently to break the glass below them. The construction must be of grillwork with openings not more than 4 inches long or of slat work with openings not more than 2 inches wide with length unrestricted.

7. Wall-opening barriers must be constructed and mounted so that, when they are in place at the opening, the barrier can withstand a load of at least 200 pounds (91 kilograms) applied in any direction (except upward) at any point on the top rail or corresponding member.

8. Wall-opening grab handles must not be less than 12 inches long and must be mounted to provide 3 inches of clearance from the side framing of the wall opening. The size, material, and anchoring of the grab handle shall be such that the completed structure can withstand a load of at least 200 pounds applied at any point of the handle.

9. Wall-opening screens must be constructed and mounted so that they can withstand a load of at least 200 pounds applied horizontally at any point on the near side of the screen. They may be of solid construction, of grillwork with openings not more than 8 inches long, or of slat work with openings not more than 4 inches wide with length unrestricted.

Appendix B. Floor Materials and Surfaces

* Floors and stairways should be designed to have slip-resistant surfaces; adhesive carborundum strips may used on stairs treads

or ramps and at critical concrete areas. Etching with mild muriatic acid solution will lessen slip problems.

** Colloidal silica is an opalescent, aqueous solution confining 30 percent amorphous silica dioxide and a small amount of alkali as a stabilizing agent.

Appendix C. Walking and Working Surfaces Including Stairs, Platforms, and Fixed Ladders Safety Checklist

This safety checklist will help employees and supervisors follow minimal safety practices. This list is not meant to be comprehensive, nor is it meant to form part of any official self-assessment practice. Where appropriate, local safety offices and supervisors are encouraged to add to these checklists. Relevant references are noted after each question.

Floors and Aisles OK Action Needed

Are the floors of all shop areas, service rooms, utility areas, and storerooms kept clean and orderly? -----

29 CFR 1910.22 (a) (1) & (2)

Are drain platforms, mats, or other dry standing
places used when floors are continually wet? -----

29 CFR 1910.22 (a) (2)

Are machines located so that the movement of one
operator will not interfere with the work of another? -----

29 CFR 1910.22 (b) (1)

Are aisles at least 30 inches (75 centimeters) wide
and machines arranged so that operators do not stand
in aisles? -----

29 CFR 1910.22 (b) (1)

Do aisles, loading docks, and through doorways have
enough clearance to allow safe turns where material
handling equipment is used? -----

29 CFR 1910.22 (b) (1)

Are permanent aisles marked with lines on the floor

in open bay shop areas? -----

Note: New lines should be yellow and be at least

2-1/2 inches wide.

29 CFR 1910.22 (b) (2)

Are floors, aisles, and passageways free from

obstructions? -----

29 CFR 1910.22 (b) (1)

Are floor-loading capabilities posted in all

required areas? **29 CFR 1910.22 (d) (1)** -----

Are floor load capabilities exceeded? -----

29 CFR 1910.22 (d) (2)

Floor and Wall Openings/Holes

Is each stairway, ladder way, or platform floor

opening guarded by a standard railing and toe board

and/or a hinged floor opening cover? -----

29 CFR 1910.23 (a) (1) & (2)

Are all pit or trap openings guarded by a hinged
cover or, if the cover is not in place, is the
opening protected by standard removable railings? -----

29 CFR 1910.23 (a) (5)

Is each hatchway, chute, or similar floor opening
guarded by either:

- o A hinged floor opening cover? -----
- o A standard railing and toe boards? -----
- o A removable railing and toe boards on two sides
with standard railings and toe boards on other
open sides? -----
- o Personnel barriers to prevent persons from
falling into chutes or hatches? -----

29 CFR 1910.23 (a) (3)

Are temporary floor openings attended by someone or

guarded by temporary standard railings? -----

29 CFR 1910.23 (a) (7)

Are floor holes guarded with a floor-hole cover that
is hinged in place? -----

29 CFR 1910.23 (a) (6)

If the floor-hole cover is not in place, is the
opening attended by someone, or guarded by a
removable standard railing and toe boards? -----

29 CFR 1910.23 (a) (7)

Are floor holes around or near fixed machinery guarded
by a cover to preclude personnel, tools or material from
falling into the hole? (Perforations in guard materials
must not be greater than 1 inch in width.) -----

29 CFR 1910.23 (a) (9)

Are platforms used where doors or gates open directly

on stairs? -----

29 CFR 1910.23 (a) (10)

Are wall openings where personnel or materials could fall more than 4 feet guarded by one of the following methods:

- o Railing, picket fence, half door or equivalent guard?
- o Hinged doors to cover all chute openings?
- o Standard slats, railing, grill work and toe boards?

Note: This is in addition to the normal protective doors.

29 CFR 1910.23 (b) (1)

Is every open-sided floor platform that is 4 feet (1.2 meters) or more above adjacent floor or ground level guarded by standard railings on all open sides except the access point to fixed stairs, ladders, or ramps? -----

29 CFR 1910.23 (b) (3)

Are railings equipped with toe boards installed on
open sides of floors or platforms where people might
pass beneath? -----

29 CFR 1910.23 (b) (5)

Are all walkways constructed with a minimum 18-inch-
(45-centimeter-) wide walking surface and adequately
guarded with standard railing and toe boards? -----

29 CFR 1910.23 (c) (2)

Fixed Stairs

Are fixed stairs installed where people must
routinely move from one structure level to another? -----

29 CFR 1910.24 (b)

Are stairs available to people who need access to
operating platforms or equipment to perform their
jobs? -----

29 CFR 1910.24 (b)

Do fixed stairs have a minimum width of 22 inches

(55 centimeters)? -----

29 CFR 1910.24 (d)

Is the angle of fixed stairs within the preferred

range of 30 and 50 degrees? -----

29 CFR 1910.24 (e)

Are standard railing or hand rails installed on

every flight of stairs having four or more risers? -----

29 CFR 1910.23(d)

Is there a minimum of one hand rail installed on

all enclosed stairways that have treads less than

44 inches (110 centimeters) wide? -----

29 CFR 1910.23 (d) (1) (i)

Is there a stair rail provided on the open side of
all stairways less than 44 inches (110 centimeters)
wide? -----

29 CFR 1910.23 (d) (1) (ii)

Are stair rails provided on both sides of open
stairways that are less than 44 inches (110
centimeters) wide? -----

29 CFR 1910.23 (d) (1) (iii)

Is there a handrail on each enclosed side and a
railing on each open side of all stairways that are
more than 44 inches (110 centimeters) but less than 88
inches (220 centimeters) wide? -----

29 CFR 1910.23 (d) (1) (iv)

Is there a stair handrail on each enclosed side, one
stair rail on each open side and one hand rail in
the center of all stairways more than 88 inches

(220 centimeters) wide? -----

29 CFR 1910.23 (d) (1) (v)

Are spiral staircase hand rails offset to prevent walking on tread surfaces less than 6 inches (15 centimeters) wide? -----

29 CFR 1910.23 (d) (2)

Are fixed stairs installed where people need access to high levels daily or during each work shift to gauge, inspect, or to perform maintenance where workers are exposed to acids, caustics, or other harmful substances? -----

29 CFR 1910.24 (b)

Does the tread nose have an even leading edge that has been rounded or beveled to prevent people from catching their heels on the treads? -----

29 CFR 1910.24 (f)

Are stair treads slip-resistant and do their noses have a nonslip finish? -----

29 CFR 1910.24 (f)

Do platforms have the same width as the stairs
and a minimum of 30 inches (75 centimeters) of
length, measured from the direction of travel? -----

29 CFR 1910.24 (g)

Are standard railings used on the open sides of
all exposed stairs and platforms? -----

29 CFR 1910.24 (h)

Are handrails used on at least one side of closed
stairs, preferably on the right side going down? -----

29 CFR 1910.24 (h)

Are stairs lighted with a minimum of 5-foot candles
of light so that all treads and landings are visible? -----

29 CFR 1910.37 (q) (6)

Fixed Ladders

Do all fixed ladders meet the requirements of rungs having
a minimum diameter of 0.75 inch (1.9 centimeters) for metal
ladders, 1 inch (2.5 centimeters) for corrosive atmospheres,
and 1.125 inch (3 centimeters) for wood ladders? -----

29 CFR 1910.27 (b) (1) (i).

Is the distance between rungs, cleats, and steps
not more than 12 inches (30 centimeters)? -----

29 CFR 1910.27 (b) (1) (ii).

Are rungs, cleats, and steps spaced uniformly
throughout the length of the ladder? -----

29 CFR 1910.27 (b) (1) (ii)

Is the minimum width of rungs or cleats 16 inches
(40 centimeters)? -----

29 CFR 1910.27 (b) (1) (iii)

Are rungs, cleats, and steps free of splinters,
sharp edges, or projections that may be a hazard? -----

29 CFR 1910.27 (b) (1) (iv)

Are the rungs of the ladder so designed that the
foot cannot slide off the end? -----

29 CFR 1910.27 (b) (1) (v)

Are fastenings an integral part of fixed ladder design? **29 CFR 1910.27 (b) (3)** -----

Are metal ladders and appurtenances painted or
otherwise treated to resist corrosion and rusting
where the location demands? -----

29 CFR 1910.27 (b) (7)

Is the preferred pitch of fixed ladders in the
range of 75 to 90 degrees from the horizontal? -----

29 CFR 1910.27 (a) (2)

Is a clear width of at least 15 inches (37
centimeters) provided each way from the centerline
of the ladder in the climbing space except when
cages or wells are necessary? -----

29 CFR 1910.27 (c) (2)

Do cages extend down the ladder to a point not less
than 7 feet (2.1 meters) nor more than 8 feet (2.4
meters) above the base of the ladder? -----

29 CFR 1910.27 (d) (1) (iv)

Is the distance from the centerline of rungs, cleats,
or steps to the nearest permanent object in back of
the ladder 7 inches (17.5 centimeters) or more,
except when unavoidable obstructions are encountered? -----

29 CFR 1910.27 (c) (4)

Are cages and wells provided on ladders of more than
30 feet (9.2 meters) except where ladder safety
devices are used? -----

29 CFR 1910.27 (d) (1) (ii)

Is the distance from the centerline of grab bars to
the nearest permanent object in back of the grab
bars more than 4 inches (10 centimeters)? -----

29 CFR 1910.27 (c) (5)

Do the grab bars protrude beyond the climbing side
of ladder rungs? -----

29 CFR 1910.27(c)(5)

Is the step across distance from a ladder to
equipment or structure not less than 2.5 inches (6.3
centimeters) nor more than 12 inches (30 centimeters)? -----

29 CFR 1910.27 (c) (6)

Do counter weighted hatch covers open a minimum of 60
degrees from the horizontal? -----

29 CFR 1910.27 (c) (6)

Are there protruding hazards within 24 inches (60
centimeters) of the centerline of rungs or cleats? -----

29 CFR 1910.27 (c) (7)

Are any potential hazards within 30 inches (75
centimeters) of the centerline of rungs or cleats
fitted with deflector plates? -----

29 CFR 1910.27 (c) (7)

Do protective cages extend a minimum of 42 inches
(105 centimeters) above the top of a landing, unless
other acceptable protection is provided? -----

29 CFR 1910.27 (d) (1) (iii)

Are protective cages at least 27 inches (67

centimeters) in width? -----

29 CFR 1910.27 (d) (1) (v)

Are landing platforms provided for each 30 feet (9.2 meters) of height or fraction thereof when ladders are used to ascend to heights exceeding 20 feet (6.1 meters) (except chimneys)? NOTE: Where no cage, well, or ladder safety device is provided, landing platforms shall be provided for each 20 feet (6.1 meters) or fraction thereof. -----

29 CFR 1910.27 (d) (2)

Is a landing platform provided where a person has to step a distance greater than 12 inches (40 centimeters) from the centerline of the ladder rung? -----

29 CFR 1910.27 (d) (2) (i)

Are platforms not less than 24 inches (60 centimeters) in width and 30 inches (75 centimeters)

in length? -----

29 CFR 1910.27 (d) (2) (ii)

Is one rung of any section of the ladder located at
the same level as the landing? -----

29 CFR 1910.27 (d) (2) (iii)

Do the side rails of through or side-step ladder
extensions extend 3.5 feet (1.07 meters) above
parapets and landings? -----

29 CFR 1910.27 (d) (3)

Are grab-bar diameters the equivalent of the round
rung diameters? -----

29 CFR 1910.27 (d) (4)

Do all ladder safety devices used on ladders over 20
feet (6.1 meters) in unbroken length meet design
requirements of ladders they serve? -----

29 CFR 1910.27 (d) (5)

Are all ladders inspected regularly, with the
interval between inspections being determined by use
and exposure? -----

29 CFR 1910.27 (f)

Are stairways in good condition with standard railings
provided for every flight having four or more risers?

29 CFR 1910.23 (d)(1) -----